Claims

1. Mooring buoy (6) comprising a submerged part (12, 13) and a part (11) extending above water level, the part above water level comprising a fluid outlet duct (24) for attaching to a vessel (7), the buoy being anchored to the seabed via substantially taut anchor legs (27, 28), a substantially horizontally oriented fluid transfer duct (15) being attached to a connector (17) of the buoy (6) in a non-rigid manner, the buoy comprising a substantially vertical fluid duct (21) between the connector (17) and the outlet duct (24) and a mooring connector (9) for attaching to a mooring line (8) of the vessel (7), wherein the length (L) of the buoy is between 20 m and 70 m and the ratio of the diameter (D) of the lower part (13) of the buoy and the length (L) being below 0.3, preferably below 0.2.

2. Mooring buoy (6) according to claim 1, wherein the connector (17) is located at or near a lower section (13).

3. Mooring buoy (6) according to claim 1 or 2, the connector (17) being located at or near the bottom (16) of the buoy (6).

4. Mooring buoy (6) according to claim 1, 2 or 3, the lower section (13) extending to a distance below water level, an upper section (12) extending from the lower section (13) to above water level, the upper section (12) having a diameter that is smaller than the diameter of the lower section.

5. Mooring buoy (6) according to claim 4, the upper section (12) being connected to the lower section (13) via a bearing (30, 57, 60).

6. Mooring buoy (6) according to claim 4, the upper section (12) being connected to the lower section (13) via a hinge joint (32).

7. Mooring buoy (6) according to any of claims 1-6, the buoy part above water level comprising a rotatable head (11) with a rotatable swivel (23) between the outlet duct

(24) that is placed on the rotatable head (11) and the substantially vertical fluid duct (21).

8. Mooring buoy (6) according to claim 7, the rotatable head being of a larger diameter than the diameter of the upper section (12) and having a buoyancy chamber (40).

9. Mooring buoy (6) according to claim 7 or 8, the rotatable head (11) being placed on a shaft (41) extending from the lower section (13) to above water level, the rotatable head (11) being connected to the shaft (41) via an axial bearing (42) above water level and via a slide bearing (60) at or near the lower section (13).

10. Mooring buoy (6) according to any of the preceding claims, the mooring connector (9) being placed at or near the lower part of the upper section (12).

11. Mooring buoy according to claim 10, the mooring connector (9)comprising a bearing (33), rotatable around a longitudinal axis (34) of the buoy.

12. Mooring buoy (6) according to any of the preceding claims, the mooring connector (9) comprising two connector parts at circumferentially spaced-apart locations.

13. Mooring buoy (6) according to any of the preceding claims, the substantially horizontally oriented fluid transfer duct (15) comprising at or near the connector a flexible joint.

14. Mooring buoy (6) according to any of the preceding claims, the substantially horizontally oriented transfer duct (15) comprising a steel piping.

15. Mooring buoy (6) according to claim 13, the steel piping extending along a curved trajectory, such as in a U-shaped, W-shaped configuration.

16. Mooring buoy (16) according to any of the preceding claims, wherein the connector (17) is placed at or near the attachment point of the anchor legs (27, 28) to the lower section (13).

17. Mooring buoy according to any of the preceding claims, the buoy comprising on its lower section ballast means.

18. Mooring buoy according to claim 17, wherein the ballast means is formed by a ballastable compartment.